DRAFT
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To: ETAAC Members
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RE: Forests through the Climate Lens - Proposal to CARB for a Policy Framework
ETAAC mtg, August 14. Sacramento
Date: August 9, 2007

CONTEXT

Forests cover 30% of California. Photosynthesis by forests is one of the few processes that daily remove and store a portion of California's ongoing emissions.

Conversely, forest loss is an emission. Global forest destruction produces one quarter of all man-made emissions of carbon dioxide, adding almost two billion tonnes carbon per year[1]. In the United States, 1 million acres of private forestlands were lost to development per year by the 1990s[2]. In California, nearly 3 million acres of private forest and rangelands are conservatively projected to be lost by the 2040s[3].

Forests are vulnerable to climate change. Changed rainfall and snow patterns, temperatures and species distribution will alter the forests we now know. Signs of climate stress from drought and higher temperatures already seem to appear at higher elevations. Unnatural stocking -- too many stems per acre --from decades of fire suppression also makes some forests more vulnerable to wildfire, pests and water stress. Climate effects will not hit all forests equally, and managing forests to improve resiliency requires further understanding of processes at different elevations and locations.

The biggest climate gains from the forest sector will result from:

- Avoiding carbon emissions from forestland conversion
- Enhancing carbon storage in forests and in wood products
- Reducing wildfire emissions
- Utilizing waste forest biomass to generate electricity

The main reasons these haven't already been done:

- Costs exceed revenues
- Low public trust that environmental values will be protected
- No reason to do it

All of these items have been debated in the context of other forest issues. The topics are not new, and substantial literature is available for each. The task here is to identify a few key areas where CARB and state climate policy could have significant effect.

POLICY LANDSCAPE

- The "Business as Usual" projection for the climate benefits from forests is a downward trend. This is due to:
  - Push to Convert forests to other uses
  - Increased Wildfire
  - Chicken-and-egg dilemma linking biomass projects to wildfire fuel reduction
  - Climate change stressors

- Forests provide a wide range of benefits - wildlife habitats, watershed structure, recreation sites, open space, and wood products for homes and business. Each has an active and savvy political constituency.

- The immediate stakeholders and general public are highly attuned to changes in forest use and forest policy. A long history of debate shows that opposing sides can counter and deadlock each other politically and in the courts. Climate brings a new dimension to the table, and offers opportunities for positive rather than negative outcomes across ownerships and within each ownership type.

- CARB has limited regulatory authority over forest management, and attempts to extend its regulatory reach will generate political upheaval. Instead, developing the framework, guidelines and incentive-based policies for forest sector participation in climate solutions offer a more productive path for CARB.

BIG PRINCIPLES FOR CARB: Including Forests in a Climate Strategy

1. Start a New Page for Forests

- Use CARB's stature to reinforce the necessary role of forests as a part of climate solutions. Bolster public understanding of forest processes and needs.

- Acknowledge Forests as an emission and sequestration sector in its own right, and not just an "indulgence offset" for fossil fuel use. Solutions to address forest emissions may include use of markets and offsets, but they stand on their own merits pertinent to the forest carbon cycle. Forests may also have value in the economics of fossil fuel reduction, but this should be viewed as a positive reinforcement of mutual goals.

- Agree to look at forests through a climate lens that finds policies appropriate to each forest sector. Rather than pitting sectors and management objectives against each other, or driving other forest goals under the guise of climate programs, leave those debates for elsewhere and instead look for early climate gains appropriate to each class of ownership and forest use. These forest sectors include: public and private; protected and managed; industrial and non-industrial; large owner and small owner.

  This is similar to the approach recommended for low-carbon fuels, where specific technologies are not singled out as winners[4]. If, and as, market options develop for forest carbon, owners will respond according to their own motivations. It is premature to pick winning forest sectors now, but we can find climate gains and policies within each to encourage early action.

2. Establish the Framework

Progress can be made by establishing flexible and durable frameworks for forest landowners to work within, and letting them find their way to participate.

Basic decisions are needed:

- Reaffirming the metrics and structure for forest carbon accounting and reporting: California needs to remain compatible with existing international conventions (see specifics below)

- Establishing the role forests will have in carbon markets: Legitimate "gold standard" Forest carbon credits compliant with CCAR are already in play in the voluntary carbon market, along with versions with different standards. If a cap-and-trade market is established decisions will be needed: *whether* offsets will be allowed for flexibility, *how much* and *what kinds* (i.e. will forests be eligible). The forest sector argues "yes" for eligibility, and meanwhile will continue participation in the voluntary market.

- Developing protocols for additional forest activities: Current Protocols address 'Forest Management', 'Reforestation' and 'Avoided Deforestation'. CARB and CCAR should evaluate whether additional protocols addressing wood products, public lands, urban forestry, biomass, wildfire avoidance and other activities are ready for development.

  In addition, possible amendments to the existing CCAR forest protocol may be appropriate to reflect experience gained since they were adopted and the updated policy environment.

3. Set the Overarching Goal: "Avoid Loss, Enhance Gain"

Forests already perform a critical role countering existing emissions, and they can do better. All major climate options for the forest sector fall under this goal[5].

Avoiding losses includes:
- Keeping the forest land base in forest use, rather than conversion to carbon-emitting uses
- Retaining a forest industry with sufficient infrastructure to beneficially utilize wood materials
- Reducing emissions from wildfire by bringing unnatural stands back to more natural conditions
- Understanding climate impacts and working towards resilience

Enhancing gain includes:
- Managing forests to develop larger carbon reservoirs in trees, wood products and soils
- Reforesting areas that would naturally hold more trees
- Substituting fossil fuels with wood biomass for electricity
- Linking wildfire reduction to the biomass cycle

Avoiding loss and enhancing gains will help restore and "resile" both forest ecosystems and forest landowners. To 'resile' is to make resilient, spring away from an impact[6].

CARB's climate authority is key to focusing attention on these issues.

4. Keep Learning and Offer Carrots

- Support further research on the forest carbon cycle: Data needs are not trivial. For example:
  - Technologies for forest carbon inventory assessment; Improve methods for assessing sequestration and emissions
  - Test more efficient remote assessment techniques for carbon inventory: lidar; spectral analysis
  - Model advances in the forest sector to inform state emission data
  - Examine how forests become C saturated; examine forest carbon exchange through eddy flux
  - Track climate change impacts on forests; evaluate management approaches designed to improve resilience and deal with impacts -- or not

  - Model inputs, outputs and flow of wood carbon to maximize sequestration, etc.

- There is always room for new ideas in the forest sector
  - Look for efficiencies in harvest methods, equipment, combustion techniques and manufacturing
  - Support research in small-scale biomass technologies, fine wood gasification, converting woody material to liquid fuels (ligno-cellulosic)
  - Test incentives such as small changes in tax structure, electricity rate, position in the regulatory queue, grant funding and purchase preferences for their effect in stimulating climate- and energy-efficient forest projects
  - Be open to good ideas

SPECIFIC ITEMS FOR CARB ATTENTION

1. Adopt established forest carbon metrics and accounting principles:

The international community has been developing forest carbon metrics and accounting conventions with increased attention at least since the UN Conference on Environment and Development in 1992 (the "Rio Earth Summit") and the adoption of the Kyoto Protocol in 1997. Within the UN Framework Convention on Climate Change (UNFCCC)[7], the Subsidiary Body for Scientific and Technical Advice (SBSTA), the Forest and Agricultural Organization of the UN (FAO) and the International Panel on Climate Change (IPCC) forest scientists in workgroups around the world have built and negotiated the fundamental structure for forest carbon accounting to be used in national greenhouse gas inventories, rules for CDM forest projects, and additionality concepts applied to potential market systems[8]. The United States has participated either as a signatory or observer in all of these processes, and the US applies accepted standards in its own national GHG reporting per its UNFCCC commitment.

Building upon this, the World Resources Institute and World Business Council for Sustainable Development (WRI/WBCSD) have developed protocols for corporate and project GHG reporting and accounting. These specifically include guidance for land use, land-use change, and forestry[9] utilizing carbon stock change accounting to establish baseline and additionality. These underpin the framework for the California Climate Action Registry and its protocols.[10] In order to smooth California's entrance into global climate programs and markets that are already underway, it is imperative that California not develop a conflicting separate version of forest carbon accounting, as a few have proposed[11].

2. Counter the Push to Forest Conversion

At a minimum, stem the loss of what we have. Forest conversion is a natural result of[12]

1) Increased values of forest land for real estate development relative to timber;
2) Regulatory costs for forest management higher in California than elsewhere;
3) Cyclical prices for timber products and fewer mills for forest landowners to access, especially non-industrial owners
4) Estate and probate tax structures that drive landowners to subdivide and sell.

CARB can support incentive programs that bundle carbon value with other working forest conservation easements, bond funds, emerging environmental services markets, conversion mitigation, and proposals for tax and regulatory restructuring to help keep landowners on the land.

3. Support programs of other forest agencies to reduce wildfire risk: Link Wildfire and Biomass

We need to dispel the notion that forest management is inherently bad for forests, and that protected forests are in pristine conditions. Even old growth stands in cherished parks like Yosemite National Park and Humboldt Redwoods State Park are now impacted by effects of fire suppression. In many forests active management is needed to restore forest structure to more natural conditions, and protect the values we intended when they were acquired.

Increased wildfire risk is linked to:

1) Overstocking, accumulation of ground fuels and fuel ladders resulting from fire suppression, especially on public lands. Climate stress amplifies fire size and intensity;
2) The scale of the problem is larger than public budgets can afford; resources to implement fuel reduction projects do not match what is needed;
3) Long lead-time required for community-based processes to build public confidence in each local fuel management proposal;
4) Land use patterns of the urban:forest intermix resulting in homes built throughout the forest matrix, increasing ignition sources and exponentially increasing fire suppression costs.

Confusion sometimes occurs from the apparent conflict between goals to *increase* carbon storage within forests versus *reducing* the fuels that lead to wildfire. The issue is related to forest structure rather than to total carbon – e.g. the number of stems, diameter, spacing, ground fuels and fuel ladders can intensify and spread fire, but the same carbon could be distributed in a smaller number of larger, well spaced trees, moved to the wood products pool, or added through reforestation of areas that were not well restocked following logging or fire. Research continues to develop further understanding of fire and carbon dynamics of stand structure. Storing additional forest carbon is not intended to mean ignoring forest health.

CARB can be cognizant of these wildfire issues and work to link wildfire reduction with Biomass objectives.

4. Help unlock the dilemma of Forest Biomass Projects; Consider a "Green Biofuels Index"

Biomass projects utilizing forest wood wastes are constrained by :

1) Chicken-and-egg dilemma: Biomass facilities cannot be sited, sized and financed without some horizon of dependable supply. Dependable supply cannot be provided without public trust that forests won't be overexploited by fuel reduction projects. A federally-supported "Community Wildfire Protection Plan" process now encourages public input for community fuel breaks and defensible space, but advocacy group challenges remain on larger forest matrix projects and post-fire salvage.

2) Haul-distance to plant: Trucking forest biomass from the woods to a fixed combustion plant is a key determinant of biomass economics and net climate benefit.

3) Electricity price determines which biomass projects break-even. Most lumber mills already use co-generation to supply on-site power needs and sell excess to the grid. A slight price boost increases supply available for co-gen, such as logging slash now burned at the log landing. Fuel-breaks around communities and projects large enough to affect fire behavior have been difficult

to finance without at least break-even value for the material removed. CARB should coordinate with CEC and CPUC on biomass policy and pricing for climate goals.

4) Small and medium-scale technologies that move combustion facilities to the woods (rather than biomass to a fixed plant) may be appropriate in some conditions. Similarly, small plants may be appropriate in strategic forest locations for replacement power where main transmission lines are vulnerable to outages. To date such technology has not been cost effective.

5) Sources of agricultural crop waste and urban waste may be more dependable and drive plant siting. Siting of Energy Parks, as suggested in other ETAAC recommendations, should consider forest biomass availability.

6) Green Biofuels: A "Green biofuels index[13]" has been suggested as an approach to rank projects and improve public confidence in biofuel sustainability. CARB, CPUC, CEC and USFS can examine whether this might be a useful tool for biomass. Based on the "green labeling" concept, the index 1) develops a green biofuel protocol; 2) uses environmental labeling to distinguish products; 3) Allows the market to reflect efficient labeling and claims; 4) gives preference for green biofuels 5) offers incentives for environmental performance; 6) establishes aggregate green biofuels performance standards.

5. Support "California Grown" Programs for Wood Products: Put our money where are ethics are

- Californians take pride in our ability to mesh environmental protection and business-friendly solutions. Forest products are no exception. We grow trees well, harvest and mill them efficiently, meet tough regulations, and regrow the trees that are cut. We import 70-80% more wood products than we grow, often produced in areas with lower environmental standards than ours. CARB can push climate goals by encouraging state procurement policies and individual Californians to put our money where our ethics are and reward products that Californians produce.

Addenda to include:

- Appendix with updated CAT estimates of emissions and gains from forest sector
- Abbreviated Bibliography
- Endnotes - still in draft form:

[1] Food and Agriculture Organization of the United Nations. 2006. Global Forest Resources Assessment 2005.FAO Forestry Paper 147. http://www.fao.org/forestry/site/32431/en/. Also: http://www.fao.org/newsroom/en/news/2005/1000176/

[2] Stein, S.M., McRoberts, R.E., Alig, R.J., Nelson, M.D., Theobald, D.M., Eley, M., Dechter, M. & Carr, M. 2005. Forests on the edge: housing development on America's private forests. Gen. Tech. Rep. PNW-GTR-636. Portland, Oregon, USA, United States Department of Agriculture, Forest Service, Pacific Northwest Research Station. http://www.fs.fed.us/projects/fote/reports/fote-6-9-05.pdf

[3] California Dept. Forestry and Fire Department, 2003. The Changing California; Forest and Range 2003 Assessment. FRAP Fire and Resource Assessment Program. http://frap.cdf.ca.gov/assessment2003/

[4] A Low-Carbon Fuel Standard for California, Part 2: Policy Analysis - FINAL REPORT, University of California Project Managers: Alexander E. Farrell, UC Berkeley; Daniel Sperling, UC Davis. Posted: 8/2/07. http://www.energy.ca.gov/low_carbon_fuel_standard/#uc.
See also: SF Chronicle, "Emission plan from UC team: State must reduce greenhouse gases, carbon in its fuels." 8/4/07

C-1. David R. Baker. http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2007/08/04/BUN5RCLHF1.DTL&hw=low+carbon+fuel&sn=001&sc=1000

[5] Thanks to Laurie Wayburn, Pacific Forest Trust, for capsulating this phrase.

[6] Thanks to Connie Millar, USFS Pacific Southwest Research Station, for reviving a word we can use for this concept.

[7] The United States is a party to the UNFCCC. The US State Department participates as an observer in Kyoto Protocol working sessions, and receives technical support on forest matters from the USDA Forest Service.

[8] See bibliography for UNFCCC, IPCC, WRI/WBCSD LULUCF and AFOLU citations

[9] World Resources Institute, 2006. The Land Use, Land-Use Change, and Forestry Guidance for Greenhouse Gas Project Accounting. Wash. DC.

[10] California Climate Action Registry General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions Version 2.2 March 2007

[11] Proposals to substitute sequestration rate for carbon stock change would substantially conflict with established international conventions for accounting and reporting.

[12] See for example: Buckeye Forest Project. 2003; Dicus and Delfino, 2003.

[13] Turner B., R. Plevin, M.O'Hare and A. Farrell. 2007 Creating Markets for Green Biofuels: Measuring and improving environmental performance. Institute of Transportation Studies, UC Berkeley Transportation, Sustainability Research Center. Year 2007 Paper UCB-ITS-TSRC-RR-2007-1